WHAT IS CLAIMED IS:

1. A method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media by means of a magnetoresistive transducer coupled to a read channel circuit, the retrieved signal being free from intersymbol interference, the method comprising the steps of:

(a). providing magnetoresistive transducer positioning means for positioning the magnetoresistive transducer to a user-selectable location over the carrier of magnetically coated media, said positioning means including drive means for producing a change in magnetic flux about the magnetoresistive transducer upon positioning thereof at said user-selectable location, said change in magnetic flux corresponding to the magnetically polarized regions on the carrier of magnetically coated media so as to produce a voltage at an output of the read channel circuit responsive thereto;

(b). constructing a spatial image of a response function of the magnetoresistive transducer by measuring said voltage signal at said output of the read channel circuit responsive to a known distribution of the magnetically polarized regions disposed on a first carrier of magnetically coated media;

(c). constructing a spatial image of raw read signal data by measuring said voltage signal at said output of said read channel circuit responsive to an unknown distribution of the magnetically polarized regions disposed on a second carrier of the magnetic media;

(d). constructing a spatial image of a distribution of virtual magnetic charge corresponding to said unknown distribution of the magnetically polarized regions on said second carrier of magnetically coated media by spatial deconvolution of said spatial image of said response function of the magnetoresistive transducer and said spatial image of said raw read signal data; and

(e). obtaining the retrieved intersymbol interference-free signal by spatially differentiating said spatial image of said distribution of virtual magnetic charge.

2. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said magnetoresistive transducer positioning means providing step (a) includes the step of configuring said drive means to provide relative motion between the magnetoresistive transducer and the carrier of magnetically coated media upon positioning the magnetoresistive transducer at said user-selectable location.

3. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, further including the step of applying a noise-reduction function to said spatial image of a distribution of virtual magnetic charge prior to said differentiating step (e).

4. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 3, wherein said noise reduction function includes the step of applying an arctangent function to said spatial image of a distribution of virtual magnetic charge.

5. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 4 further including the step of scaling said spatial image of a distribution of virtual magnetic charge by a predetermined scaling factor prior to applying said arctangent function.

6. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said response function image constructing step (b) includes the steps of:

writing a thin stripe of the magnetically polarized regions as said known distribution on said first carrier of magnetically coated media;

measuring said voltage signal at each of a predetermined number of locations relative to said thin stripe;

partitioning said response function image into a plurality of data points, said plurality of data points corresponding in number to said predetermined number of locations at which said voltage signal is measured; and

assigning said voltage signal measurement for each of said predetermined number of locations to said respective one of said plurality of data points in said response function image.

7. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said response function image constructing step (b) includes the steps of:

writing a spot of the magnetically polarized regions as said known distribution on said first carrier of magnetically coated media;

measuring said voltage signal at a each of a predetermined number of locations relative to said spot;

partitioning said response function image into a plurality of data points, said plurality of data points corresponding in number to said predetermined number of locations at which said voltage signal is measured; and

assigning said voltage signal measurement for each of said predetermined number of locations to said respective one of said plurality of data points in said response function image.

8. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 7, wherein said spot writing step includes the steps of:

writing a thin stripe of the magnetically polarized regions on said first carrier; and

erasing a predetermined amount of said thin stripe using DC erasure so as to magnetically isolate said spot.

9. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said raw read signal data image constructing step (b) includes the steps of:

measuring said voltage signal at each of a predetermined number of locations;

partitioning said raw read signal data image into a plurality of data points, said plurality of data points corresponding in number to said predetermined number of locations at which said voltage signal is measured; and

assigning said voltage signal measurement for each of said predetermined number of locations to said respective one of said plurality of data points in said raw read signal data image.

10. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said deconvolution of said spatial image of said response function of the magnetoresistive transducer and said spatial image of said raw read signal data in said virtual magnetic charge distribution image constructing step (d) includes the steps of:

transforming said image of said response function and said image of said raw read signal data to spatial frequency representations thereof by a first orthogonal transformation;

calculating a ratio image of said spatial frequency representation of said raw read signal data to said spatial frequency representation of said spatial image of said response function to produce a ratio image;

scaling and rotating said ratio image;

transforming said scaled and rotated ratio image to a spatial coordinate representation thereof by a second orthogonal transformation to produce said virtual magnetic charge distribution image, said second orthogonal transformation being an inverse operation of said first orthogonal transformation.

11. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 10, wherein said first orthogonal transformation is a Fourier transform.

12. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said spatial image of said response function is a one-dimensional image.

13. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 12, wherein said raw read signal data image constructing step (c) includes the steps of:

determining a position for the magnetoresistive transducer at which said voltage at said output of said read channel signal is at a local maximum;

positioning the magnetoresistive transducer to said position at which said voltage is at a local maximum; and

measuring said voltage at said position to construct said spatial image of said raw read signal data image.

14. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1, wherein said spatial image of said response function is a two-dimensional image.

15. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 1 including the step of forming the carrier of magnetically coated media into a hard disk.

16. The method for retrieving a signal corresponding to a distribution of magnetically polarized regions on a carrier of magnetically coated media as recited in Claim 15, wherein said positioning means providing step (a) includes the steps of:

providing a spindle motor as said drive means; and

mounting said hard disk onto said spindle motor so as to rotate said hard disk thereon.

17. A method for retrieving previously written data from a magnetically coated disk by means of a magnetoresistive transducer coupled to a read channel circuit, the read channel producing at an output thereof a voltage signal corresponding to a change in magnetic polarity at the magnetoresistive transducer, the method comprising the steps of:

providing positioning means for positioning the magnetoresistive transducer to a user-selectable location over the magnetically coated disk, said positioning means including a spindle motor for rotating the magnetically coated disk relative to said user-selectable location upon positioning the magnetoresistive transducer thereat so as to produce the change in magnetic polarity;

acquiring the voltage signal at the output of the read channel circuit responsive to a known pattern of magnetized regions on a magnetically coated disk in the rotation relative to said user-selectable location;

repeating the voltage signal acquiring step until a spatial image of a response function of the magnetoresistive transducer is formed;

acquiring the voltage signal at the output of the read channel circuit responsive to an unknown pattern of magnetized regions on a magnetically coated disk in the rotation relative to said user-selectable location;

repeating the voltage signal acquiring step until a spatial image of a raw read signal is formed;

providing signal processing means for recovering the signal corresponding to a distribution of magnetically polarized regions from said spatial image of said response function and said spatial image of said raw read signal, said signal processing means including storage means for storing executable program code and representations of said spatial image of said response function and said spatial image of said raw read signal, said executable code including the steps of:

calculating a frequency-domain representation of said response function image;

storing said frequency-domain representation of said response function image as a response function spatial frequency spectrum;

calculating a frequency-domain representation of said raw read signal image;

storing said frequency-domain representation of said raw read signal image as a read signal spatial frequency spectrum;

transforming into a virtual magnetic charge spatial image a scaled ratio of said read signal spatial frequency spectrum to said response function spatial frequency spectrum; and

differentiating said virtual magnetic charge spatial image to produce the previously written data.

18. The method for retrieving previously written data from a magnetically coated disk as recited in Claim 17, wherein said executable program code further includes the step of applying a noise reduction function to said virtual magnetic charge spatial image prior to said differentiating step.

19. The method for retrieving previously written data from a magnetically coated disk as recited in Claim 18, where said noise reduction function applying step includes the steps of:

scaling said virtual magnetic charge spatial image by a predetermined number; and

applying an arctangent function to said scaled virtual magnetic charge spatial image.

20. The method for retrieving previously written data from a magnetically coated disk as recited in Claim17, wherein said known pattern of magnetization regions is a thin stripe disposed on the magnetically coated disk.

21. The method for retrieving previously written data from a magnetically coated disk as recited in Claim17, wherein said known pattern of magnetization regions is a magnetically isolated spot disposed on the magnetically coated disk.